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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/451,665	11/30/1999	SHUNPEI YAMAZAKI	07977/017002	9359

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EXAMINER	
SCHILLINGER, LAURA M	
ART UNIT	**PAPER NUMBER**
2813	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/451,665	Applicant(s) YAMAZAKI ET AL.	
	Examiner Laura M Schillinger	Art Unit 2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,7-13,15,16,18-23,25,26,28-34,36,37 and 39-82* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,5,7-13,15,16,18-23,25,26,28-34,36,37 and 39-82* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. *08/620462* .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-2, 4-5, 7-11, 22-23, 25-26, 28-32, 43-47, 52-55, 61-82 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al ('000).

In reference to claims 1, 9, and 10 Zhang teaches a method comprising:

forming a crystalline semiconductor film on an insulating surface (Fig.1C (12 and 13));

forming an insulating film on the semiconductor film (Fig.2A (201) and Col.10, lines: 30-40);

introducing a dopant (Col.10, lines: 50-68);

annealing the film (Col.11, lines: 1-15);

wherein the peak of a dopant profile is located in the insulating film (Zhang teaches that the silicon oxide layer is formed over the crystalline substrate prior to and during ion implantation Col.10, lines: 50-68. Since applicant's specification teaches that doing so produces peak concentration within the SiO(x) layer, it is inferred that Zhang's same steps create the same results.)

Response to Arguments

Applicant's arguments filed 3/8/02 have been fully considered but they are not persuasive. Applicant argues that the Examiner's rejection is based on hindsight, applicant is wrong Applicant's specification teaches that the silicon oxide layer is formed over the crystalline substrate prior and during implantation which creates the peak concentration within

the layer. Zhang does the exact same step and therefore, the peak concentration is considered an inherent aspect of the process based and the Examiner points out that applicant's own specification supports this interpretation.

In reference to claim 2, Zhang teaches wherein the insulating film is SiO (Col.10, lines: 30-40).

In reference to claim 4, Zhang teaches wherein the dopant is B (Col.10, lines: 51-68).

In reference to claim 5 Zhang teaches wherein the semiconductor film is polycrystalline Si (Col.1, lines: 30-38).

In reference to claim 7, Zhang teaches wherein B is supplied by diborane gas (Col.10, lines: 55-65).

In reference to claim 8, Zhang teaches wherein the insulating film is removed (Col.11, lines: 27-35- etching for contact holes).

In reference to claim 11, Zhang teaches further comprising laser irradiation (Col.11, lines: 1-15).

In reference to claims 22, 30, and 31 Zhang teaches a method comprising:
forming a crystalline semiconductor film on an insulating surface (Fig.1C (12 and 13));

forming an insulating film on the semiconductor film (Fig.2A (201) and Col.10, lines: 30-40);

introducing a dopant (Col.10, lines: 50-68);

annealing the film (Col.11, lines: 1-15);

wherein the peak of a dopant profile is located above the insulating film (Zhang teaches that the silicon oxide layer is formed over the crystalline substrate prior to and during ion implantation Col.10, lines: 50-68 and further that a photoresist region is also formed to prevent the P region or N region from being doped with the opposite impurity. Since applicant's specification teaches that forming a photoresist over the oxide film produces peak concentration over the SiO(x) layer, it is inferred that Zhang's identical steps create the same results.)

In reference to claim 23, Zhang teaches wherein the insulating film is SiO (Col.10, lines: 30-40)..

In reference to claim 25, Zhang teaches wherein the dopant is B(Col.11, lines: 1-15).

In reference to claim 26 Zhang teaches wherein the semiconductor film is polycrystalline Si (Col.1, lines: 30-38).

In reference to claim 28, Zhang teaches wherein B is supplied by diborane gas (Col.10, lines: 51-68).

In reference to claim 29, Zhang teaches wherein the insulating film is removed (Col.11, lines: 27-35- etching for contact holes).

In reference to claim 32, Zhang teaches further comprising laser irradiation (Col.11, lines: 1-15).

In reference to claim 43, 44 and 45 Zhang teaches a method comprising:
forming a crystalline semiconductor film to become a channel on an insulating surface (Fig.1C (12 and 13));
forming an insulating film on the semiconductor film (Fig.2A (201) and Col.10, lines: 30-40);
introducing a dopant (Col.10, lines: 50-68);
annealing the film (Col.11, lines: 1-15);
wherein the peak of a dopant profile is located in the insulating film (Zhang teaches that the silicon oxide layer is formed over the crystalline substrate prior to and during ion implantation Col.10, lines: 50-68. Since applicant's specification teaches that doing so produces peak concentration within the SiO(x) layer, it is inferred that Zhang's same steps create the same results.)

In reference to claim 46, Zhang teaches wherein the concentration ranges from 5 x 10(15) to 5 x 10 (17) atoms/cm(3) (Col.11, lines: 1-15).

In reference to claim 47, Zhang teaches further comprising laser irradiation (Col.11, lines: 1-15).

In reference to claim 52, 53, and 54 Zhang teaches a method comprising:

forming a crystalline semiconductor film to become a channel on an insulating surface(Fig.1C (12 and 13));

forming an insulating film on the semiconductor film (Fig.2A (201) and Col.10, lines: 30-40);

introducing a dopant (Col.10, lines: 50-68);

annealing the film (Col.11, lines: 1-15);

wherein the peak of a dopant profile is located above the insulating film (Zhang teaches that the silicon oxide layer is formed over the crystalline substrate prior to and during ion implantation Col.10, lines: 50-68 and further that a photoresist region is also formed to prevent the P region or N region from being doped with the opposite impurity. Since applicant's specification teaches that forming a photoresist over the oxide film produces peak concentration over the SiO(x) layer, it is inferred that Zhang's identical steps create the same results.)

In reference to claim 55, Zhang teaches wherein the concentration ranges from 5 x10(15) to 5 x 10 (17) atoms/cm(3) (Col.11, lines: 1-15).

In reference to claim 56, Zhang teaches further comprising laser irradiation (Col.11, lines: 1-15).

In reference to claim 61, Zhang teaches wherein annealing is heating (Col.11, lines: 33-35).

In reference to claim 62, Zhang teaches wherein annealing is heating (Col.11, lines: 33-35).

In reference to claim 63, Zhang teaches wherein annealing is heating (Col.11, lines: 33-35).

In reference to claim 64, Zhang teaches wherein annealing is heating (Col.11, lines: 33-35).

In reference to claim 65, 71, 72 Zhang teaches a method comprising:
forming a crystalline semiconductor film to become a channel on an insulating surface (Fig.1C (12 and 13));
forming an insulating film on the semiconductor film (Fig.2A (201) and Col.10, lines: 30-40);
introducing a dopant through ion doping (Col.10, lines: 50-68);
removing the insulating film (Col.11, lines: 29-32- etching contact holes);
annealing the film Col.11, lines: 33-35);
wherein the peak of a dopant profile is located in the insulating film (Zhang teaches that the silicon oxide layer is formed over the crystalline substrate prior to and during ion implantation Col.10, lines: 50-68. Since applicant's specification teaches that doing so produces peak concentration within the SiO(x) layer, it is inferred that Zhang's same steps create the same results.)

In reference to claim 66, Zhang teaches wherein the insulating film is SiO (Col.10, lines: 30-40).

In reference to claim 67, Zhang teaches wherein the dopant is B(Col.10, lines: 51-68).

In reference to claim 68 Zhang teaches wherein the semiconductor film is polycrystalline Si (Col.1, lines: 30-38).

In reference to claim 69, Zhang teaches wherein B is supplied by diborane gas (Col.10, lines: 51-68).

In reference to claim 72, Zhang teaches further comprising laser irradiation (Col.11, lines: 1-15).

In reference to claim 73, Zhang teaches wherein annealing is heating (Col.11, lines: 33-35).

In reference to claim 74, 79, and 80 Zhang teaches a method comprising:
forming a crystalline semiconductor film to become a channel on an insulating surface (Fig.1C (12 and 13));
forming an insulating film on the semiconductor film (Fig.2A (201) and Col.10, lines: 30-40);
introducing a dopant through ion doping (Col.10, lines: 50-68);
removing the insulating film (Col.11, lines: 29-32- etching contact holes);
annealing the film Col.11, lines: 33-35);
wherein the peak of a dopant profile is located above the insulating film (Zhang teaches that the silicon oxide layer is formed over the crystalline substrate prior to and during ion implantation Col.10, lines: 50-68 and further that a photoresist region is also formed to prevent the P region or N region from being doped with the opposite impurity. Since applicant's specification teaches

that forming a photoresist over the oxide film produces peak concentration over the SiO(x) layer, it is inferred that Zhang's identical steps create the same results.)

In reference to claim 75, Zhang teaches wherein the insulating film is SiO (Col.10, lines: 30-40).

In reference to claim 76, Zhang teaches wherein the dopant is B (Col.10, lines: 51-68).

In reference to claim 77 Zhang teaches wherein the semiconductor film is polycrystalline Si (Col.1, lines: 30-38).

In reference to claim 78, Zhang teaches wherein B is supplied by diborane gas (Col.10, lines: 51-68).

In reference to claim 81, Zhang teaches further comprising laser irradiation (Col.11, lines: 1-15).

In reference to claim 82, Zhang teaches wherein annealing is heating (Col.11, lines: 33-35).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication from examiner should be directed to Laura Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached by telephone on Monday to Friday from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Bowers, can be reached on (703) 308-2417. The fax phone number for the group is (703) 308-7722.

LMS

May 17, 2002

OLIK CHAUDHURI
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